

UNDERGROUND STORAGE TANK CLOSURE

JEFFERSON TOWER SITE

JEFFERSON, NORTH CAROLINA

Underground Storage Tank Closure
Jefferson Tower Site
Jefferson, North Carolina

For
State of North Carolina
Department of Environment, Health and Natural Resources
Division of Forest Resources (DFR)
Raleigh, North Carolina

By
Froehling & Robertson, Inc.
Raleigh, North Carolina

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SINCE



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"OVER ONE HUNDRED YEARS OF SERVICE"

P. O. Box 2551, Raleigh, NC 27602

Telephone: (919) 828-3441

FAX No.: (919) 828-5751

January 17, 1994

Mr. Daniel E. Smith
State of North Carolina
Department of Environment, Health and Natural Resources
Division of Forest Resources (DFR)
P. O. Box 27687
Raleigh, North Carolina 27611

Re: Underground Storage Tank Closure
Jefferson UST Removal
Jefferson, North Carolina

Dear Mr. Smith:

Froehling & Robertson, Inc. (F&R) is pleased to submit the results of the underground storage tank (UST) closure performed at the above referenced site on December 2 & 3, 1993. This work was performed in accordance with F&R's proposal which was approved under the DFR Task Authorization Form dated November 29, 1993.

1.0 PROJECT INFORMATION

The project site is located at the former location of the Division of Forest Resources (DFR) Ashe County Office (Region 3 District 2) on Academy Street in downtown Jefferson, North Carolina (see Drawings No. 1 and No. 2 in Appendix A). The site is currently owned by Ashe County and is currently utilized as the Ashe County Detention Center. The surrounding area is urban/commercial. An informal well survey in the surrounding area indicated that a public drinking water system is available. There was no indication of the presence of drinking water wells in the surrounding area.

HEADQUARTERS: 3015 DUMBARTON ROAD • BOX 27524 • RICHMOND, VA 23261-7524
TELEPHONE (804) 264-2701 • FAX (804) 264-1202

BRANCHES: ASHEVILLE, NC • BALTIMORE, MD • CHARLOTTE, NC • CHESAPEAKE, VA
CROZET, VA • FAYETTEVILLE, NC • FREDERICKSBURG, VA
GREENVILLE, SC • RALEIGH, NC • ROANOKE, VA • STERLING, VA



The USTs at the site were a 1,000 gallon UST (UST No. 1) and a 750 gallon UST (UST No. 2). UST No. 1 was used to store gasoline and was installed in 1982. In addition, UST No. 1 is owned by the DFR. UST No. 2 was a 750 gallon gas storage tank owned by Ashe County. This tank was removed for Ashe County by the DFR. In exchange for this service, Ashe County agreed to replace any disturbed areas such as parking lots, sidewalks, curb and gutter and landscaped areas.

The UST location is presented on Drawing No. 3 located in Appendix A of this report. UST No. 1 has not been in use for approximately one year and all product was removed from the tank at that time. UST No. 2 was closed and drained of all product several months prior to its removal. The fuel dispenser and concrete dispenser pad (\pm 4 feet by \pm 8 feet) had been removed prior to the visit.

2.0 CLOSURE ACTIVITIES

The UST closure activities were conducted on December 2 & 3, 1993. The North Carolina Division of Environmental Management (DEM) was notified by the DFR in accordance with form GW/UST-3 prior to removal of the UST. The local fire marshall was contacted by the UST removal subcontractor and informed of the planned UST removal. All of the UST closure activities were performed in general accordance with the DEM guidelines for permanent UST closure (15A NCAC 2N .0801 to .0805), the activities required by DEM Form GW/UST-2, the American Petroleum Institute (API) Publications 1604 and 2015 and the National Institute for Occupational Safety and Health (NIOSH) publication "Criteria for a Recommended Standard: Working in Confined Spaces". The UST removal and disposal was performed by RPM Services, Inc. of Asheville, North Carolina. An OSHA Health and Safety trained environmental engineer and/or



environmental technician from F&R was on-site at all times of the removal process to document and verify the closure activities. Pictures of the removal activities are shown in Appendix A (see Figure No. 1).

The USTs had been temporarily closed for some time and were empty at the time of the removal activities with the exception of a small amount (less than one inch) of product and/or sludge at the bottom of the USTs. Initially, a hole was excavated down to the top of each UST and the vent and fill pipes were removed. Each UST was then purged with carbon monoxide to remove explosive vapors. After each UST had been purged, the newly purged UST was removed from the ground and visually inspected. No evidence of holes, cracks, leaks or pitting was observed on either UST after they were removed. After the USTs were removed from the excavation and visually inspected, the tanks were loaded on a dump truck and hauled to RPM Services, Inc. in Asheville, NC for disposal (see Tank Removal/Disposal Certificate in Appendix B).

Soil samples were collected by F&R in accordance with current DEM protocol. The soil samples from beneath the USTs, product piping and dispenser island were obtained from the backhoe bucket using a stainless steel scoop. The scoop was cleaned in a soap solution and double rinsed between each sample. All of the soil samples were immediately placed in pre-cleaned glass jars with vapor/fluid tight teflon lids. The jars were completely filled before capping. All of the samples were stored on ice in a cooler and shipped overnight to the chemical analysis laboratory. EPA recommended chain-of-custody procedures were maintained throughout the sampling and analysis program.



2.1 UST REMOVAL

The USTs were removed without problems. Approximately 5.5 feet of earth was encountered over the top of tank No. 1. In comparison, UST No. 2 was covered by 3 feet of soil. The soil samples from around and beneath the USTs did not have stains, petroleum odors or elevated PID readings. The soils excavated were reddish-tan clayey silts. Groundwater was not encountered in the excavation.

The USTs were empty and in good condition. There was no evidence of holes, cracks, leaks, or pitting. The product piping was also removed. There was no evidence of leaking around the product piping or at the product piping/UST connection.

Two soil samples were obtained at depths of 1.5 to 2 feet below the UST and subjected to total petroleum hydrocarbon (TPH) chemical analysis in accordance with DEM protocol. The analytical chemical test results are included in Appendix C. Contamination was not noted in either of the samples. A summary of the field and laboratory results is as follows:

UST No. 1 - 1,000 GALLON GASOLINE					
Lab Sample	Field Sample	Location	Depth*	PID(ppm)	TPH Method 5030 (ppm)
S-1	UST1-1	North	11.5'	0	<6
S-2	UST1-2	South	11.5'	0	<6
	UST1-3	East	9.5'	0	-
	UST1-4	West	9.5'	0	-

* below ground surface



UST No. 2 - 750 GALLON GASOLINE					
Lab Sample	Field Sample	Location	Depth*	PID(ppm)	TPH Method 5030 (ppm)
S-3	UST2-1	East	8.5'	0	<6
S-4	UST2-2	West	8.5'	0	<6
	UST2-3	North	7.5'	0	-
	UST2-4	South	7.5'	0	-

* below ground surface

2.2 DISPENSER ISLAND/PRODUCT PIPING

As previously noted, the concrete dispenser pad (approximately 4 feet by 8 feet) had been previously removed. F&R performed visual observation of the area around the previous location of the dispenser pad. There was no evidence of petroleum stains and no petroleum odor. One soil sample was obtained from beneath the island at a depth of 1.5 to 2.0 feet below the existing ground surface. The sample had a PID reading of 0 ppm. The sample was subjected to analysis for TPH low boiling point hydrocarbons. The TPH analysis did not indicate the presence of contamination.

DISPENSER ISLAND					
Lab Sample	Field Sample	Location	Depth*	PID(ppm)	TPH Method 5030 (ppm)
S-5	I-1	Center	2'	0	<6

* below ground surface

The UST piping was less than 10 feet long. There was no evidence of petroleum odors or leaks around the product piping. Two soil



samples were obtained and subjected to PID measurements and analytical chemical testing. Contamination was not indicated.

PRODUCT PIPING					
Lab Sample	Field Sample	Location	Depth*	PID	TPH Method 5030 (ppm)
S-6	Pipe 1	Mid-Point	2'	0	<6
S-7	Pipe 2	East end	2'	0	<6

* below bottom of pipe

2.3 STOCKPILED SOILS

Since there was no evidence of petroleum related leaks or spills, the excavated soils were re-used as backfill. There was no stockpiled soil left on-site.

3.0 CONCLUSIONS

Based on F&R's observations and documentation of the UST closure activities, it is our opinion that the closure activities were performed in substantial accordance with DEM, API and NIOSH guidelines. DEM Form GW/UST-2 has been completed and is included in Appendix B of this report. It is our opinion that there has been no release from the UST system to the environment. We recommend no further action at this site.

4.0 LIMITATIONS

This report has been prepared for the exclusive use of the North Carolina Division of Forest Resources and/or their assignees. This report has been prepared in accordance with generally accepted environmental practices. No other warranty, expressed or implied, is made. This report should not be construed in any way to



indicate F&R's recommendation to either purchase, sell or develop the project site. F&R by virtue of providing the services described in this report, does not assume the responsibility of the person(s) in charge of the site, or otherwise undertake responsibility for reporting to any local, state or federal public agencies any conditions at the site that may present a potential danger to public health, safety or the environment.

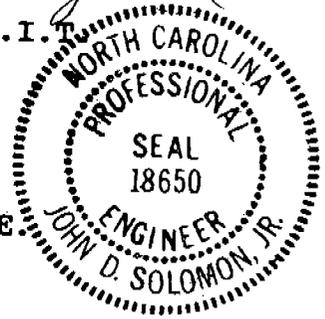
F&R appreciates the opportunity to have served you as your environmental consultant on this project. Please contact us, at your convenience, if you have any questions regarding this report or if we can be of further assistance to you.

Very truly yours,

FROEHLING & ROBERTSON, INC.

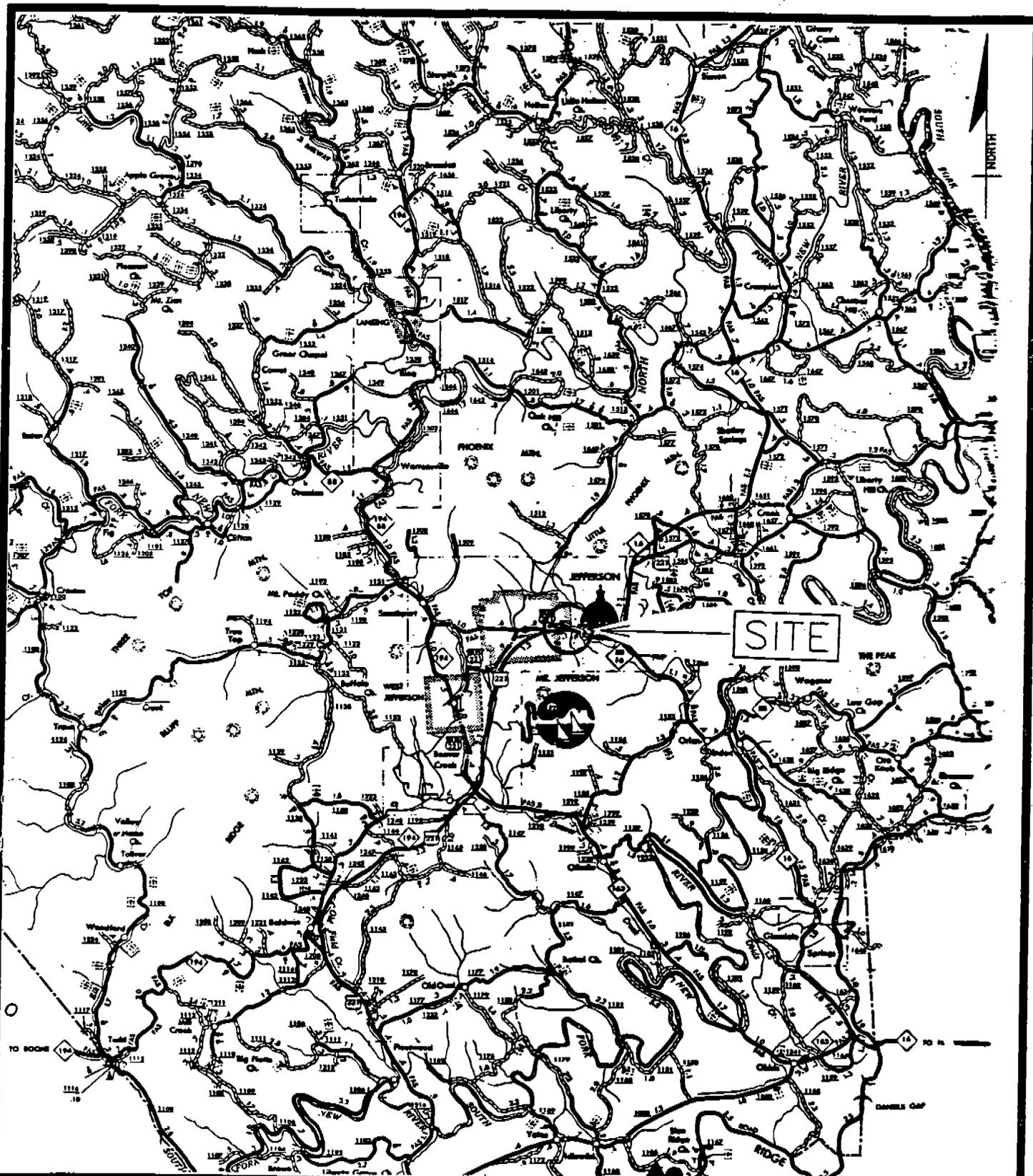
J. Bret Taylor
J. Bret Taylor, E.I.T.
Staff Engineer

J. D. Solomon
J. D. Solomon, P.E.
Project Manager



JBT/JDS:mc

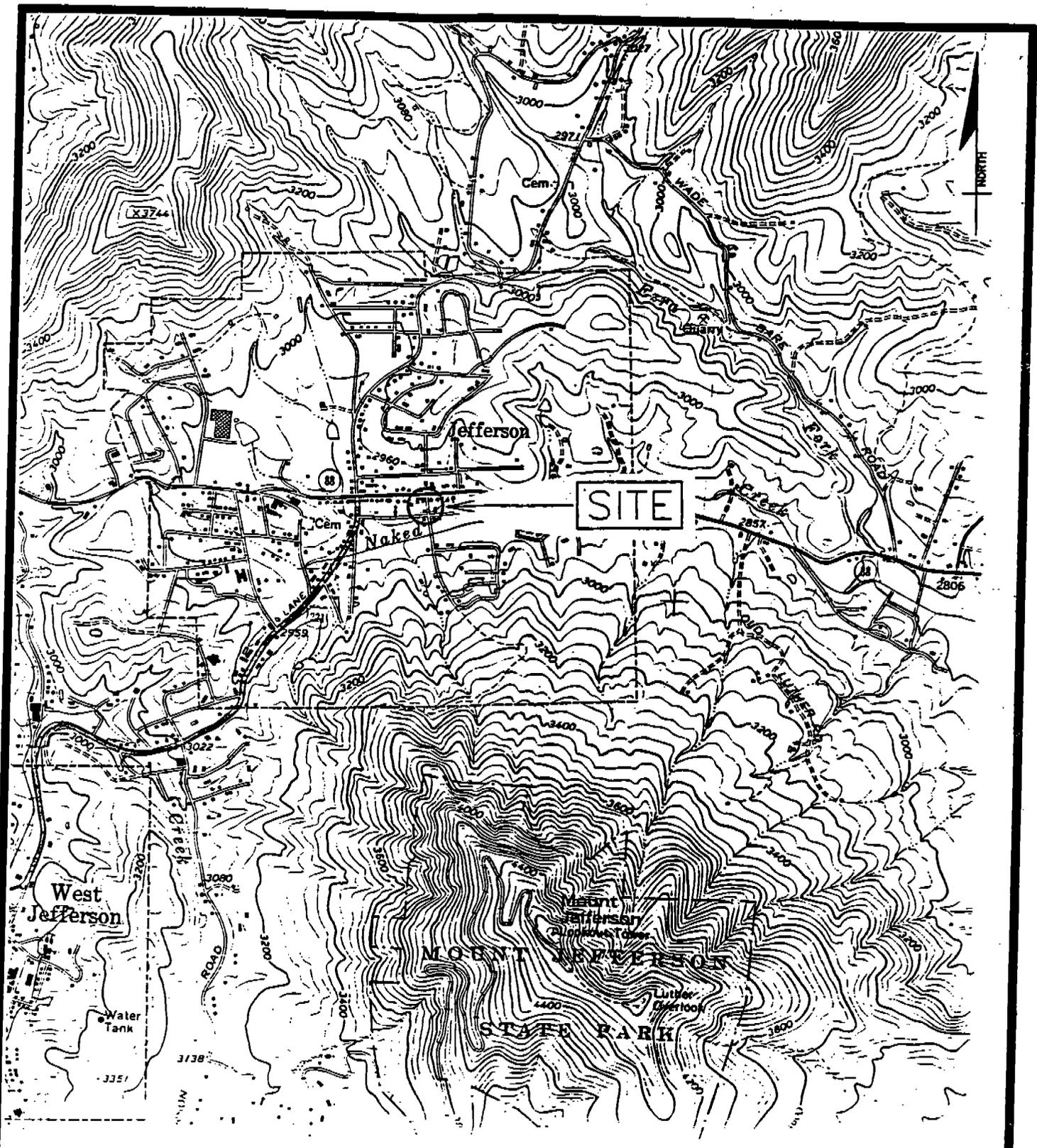
APPENDIX A
DRAWINGS



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CLIENT	DIV. OF FOREST RESOURCES	
PROJECT	V66-394	
LOCATION	JEFFERSON, N.C.	
DRAWN	MJR COUNTY MAP	
CHECKED	JDS	
DATE: 1/94	SCALE: 1" = 2MI	DRAWING No.: 1

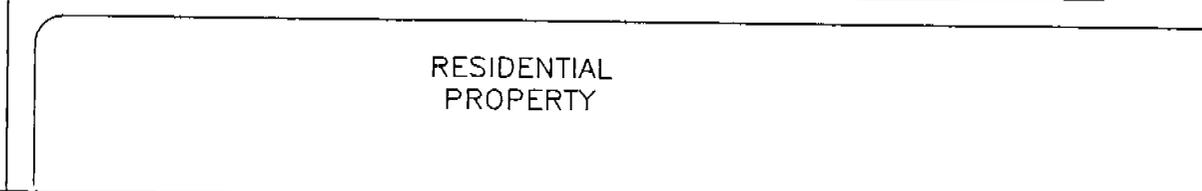
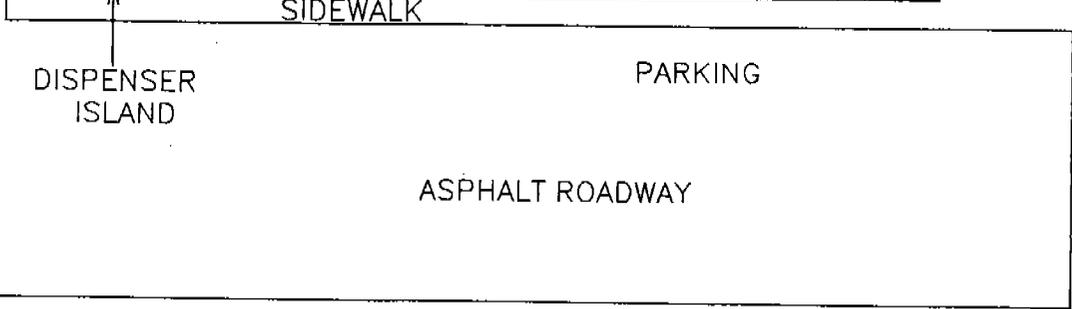
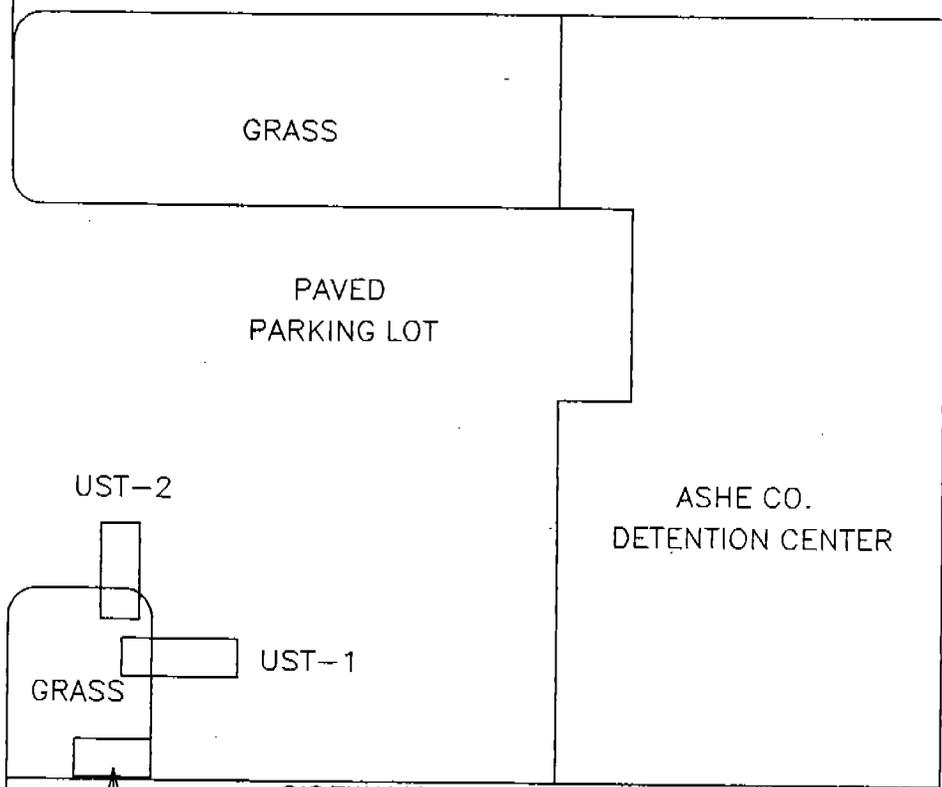



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CLIENT	DIV. OF FOREST RESOURCES	
PROJECT	V66-394	
LOCATION	JEFFERSON, N.C.	
DRAWN	MJR /USGS	
CHECKED	JDS	
DATE: 1/94	SCALE: 1" = 24000'	DRAWING No.: 2

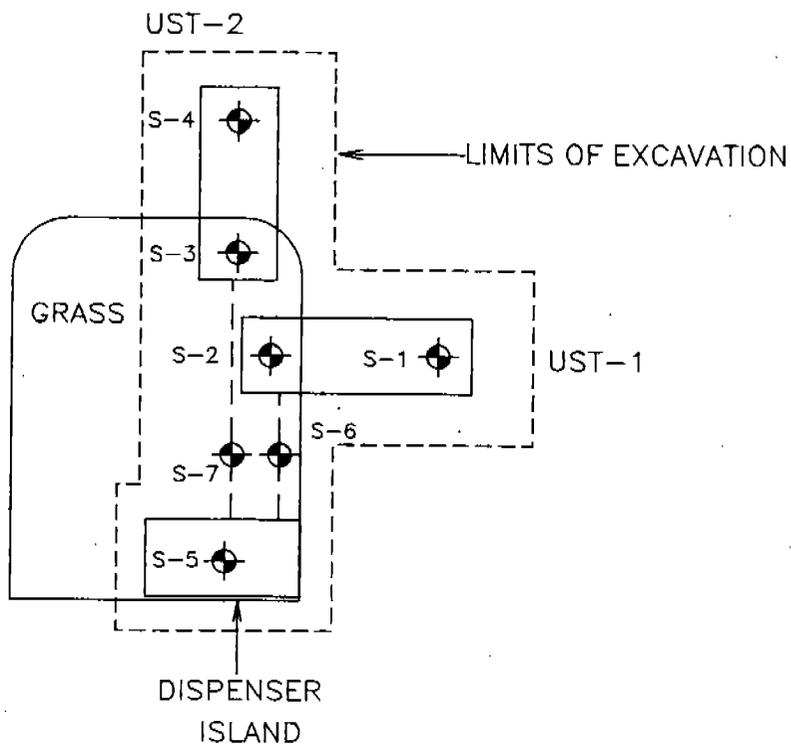


ACADEMY ST.



SINCE 1881
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CLIENT	DIV. OF FOREST RESOURCES	
PROJECT	V66-394	
LOCATION	JEFFERSON, N.C.	
DRAWN	MJR	
CHECKED	JDS	
DATE: 1/94	SCALE: 1" = 20'	DRAWING No.: 3



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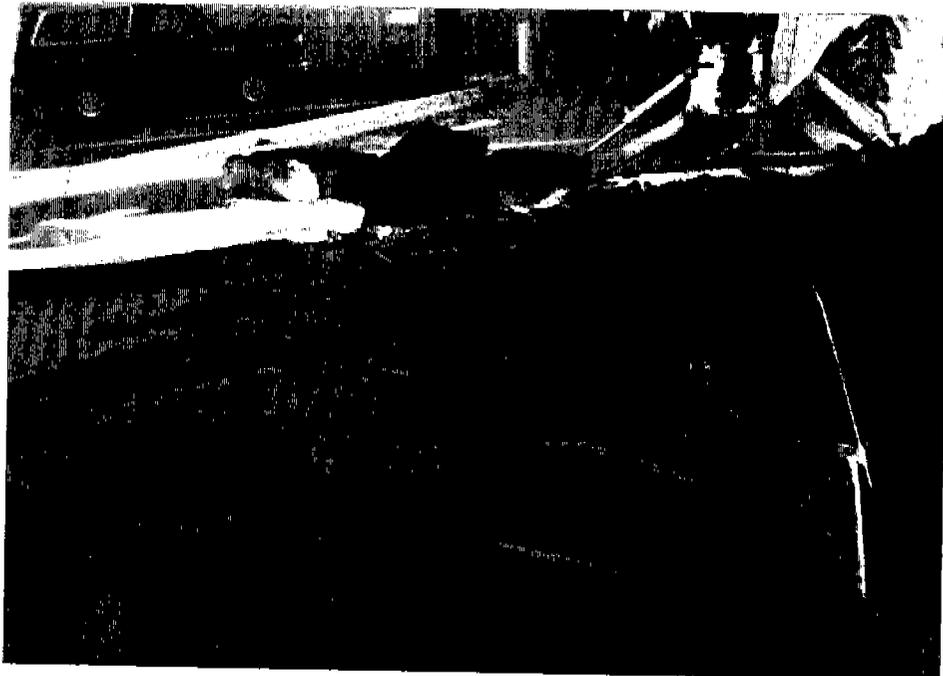
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CLIENT	DIV. OF FOREST RESOURCES	
PROJECT	V66-394	
LOCATION	JEFFERSON, N.C.	
DRAWN	MJR	
CHECKED	JDS	
DATE: 1/94	SCALE: 1" = 10'	DRAWING No.: 4

JEFFERSON UST REMOVAL



**Photograph No. 1: UST excavation at UST-2
(UST-2 is \pm 1 foot below bottom of hole)**



**Photograph No. 2: UST excavation at UST-1
(UST-1 located at back right of excavation)**

APPENDIX B

**TANK REMOVAL/DISPOSAL CERTIFICATE
AND DEM FORM GW/UST-2**

RPM SERVICES, INC.

P.O. BOX 6864

ASHEVILLE, N.C. 28816

704-254-4014

JOB NO: 120393

INVOICE NO: 120393

12-14-93

CERTIFICATE OF TANK DISPOSAL

RECEIVED FROM:

NC Forest Service
Jefferson, NC

COMMENTS:

QUAN.	TANK SIZE AND DESCRIPTION	CONTENT
2 ea.	1000 gallon UST	gas

ALL TANKS ARE CLEANED AND CUT TO SCRAP ; ALL LIQUIDS OVER 1% OF VOLUME ARE OF AT A COST OF .95 PER GALLON OR CURRENT MARKET PRICING FOR DISPOSAL ; RPM ACCEPTS NO RESPONSIBILITY FOR UNKNOWN LIQUIDS OR NON-PETROLEUM PRODUCT:

1204

vhr

DATE: 12-14-93

SIGNATURE: *Vicki A. R.*

(GW/UST-2) Site Investigation Report For Permanent Closure or Change-in-Service of U.S.T.

FOR TANKS IN NC	Return Completed Form To: The appropriate DEM Regional Office according to the county of the facility's location. [SEE MAP ON REVERSE SIDE OF OWNER'S COPY (PINK) FOR REGIONAL OFFICE ADDRESS].	State Use Only I.D. Number _____ Date Received _____
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INSTRUCTIONS

Complete and return within (30) days following completion of site investigation.

I. Ownership of Tank(s)

NCDEHNR-Division of Forest Resources

Owner Name (Corporation, Individual, Public Agency, or Other Entity)
 P. O. Box 27687

Street Address
 Wake

County
 Raleigh, NC 27611

City State Zip Code
 (919) 733-2162

Area Code Telephone Number

II. Location of Tank(s)

DFR - Jefferson

Facility Name or Company
 0-021781

Facility ID # (if available)
 Academy St., Box 841

Street Address or State Road
 Ashe Jefferson 28640

County City Zip Code
 (704) 246-2471

Area Code Telephone Number

III. Contact Person

Patrick Harris Construction Specialist (919) 553-6178

Name Job Title Telephone No. (Area Code)

Closure Contractor RPM Services, Inc., Box 6864, Asheville, NC (704) 254-4014

(Name) (Address) Telephone No. (Area Code)

Lab Froehling & Robertson, Inc., 310 Hubert St., Raleigh, NC (919) 828-3441

(Name) (Address) Telephone No. (Area Code)

IV. U.S.T. Information

V. Excavation Condition

VI. Additional Information Required:

Tank No.	Size in Gallons	Tank Dimensions	Last Contents	Water in Excavation		Free Product		Noticeable Odor or Visible Soil Contamination	
				Yes	No	Yes	No	Yes	No
				1	1,000	4' ϕ x 12'	Gasoline		x
2	750	4' ϕ x 10'	Gasoline		x		x		x

See reverse side of pink copy (owner's copy) for additional information required by N.C. - DEM in the written report and sketch.

VII. Check List

Check the activities completed.

- Contact local fire marshal
 - Notify DEM Regional Office before abandonment.
 - Drain & flush piping into tank.
 - Remove all product and residuals from tank
 - Excavate down to tank.
 - Clean and inspect tank.
 - Remove drop tube, fill pipe, gauge pipe, vapor recovery tank connections, submersible pumps and other tank fixtures.
 - Cap or plug all lines except the vent and fill lines.
 - Purge tank of all product & flammable vapors.
 - Cut one or more large holes in the tanks.
 - Backfill the area.
- Date Tank(s) Permanently closed: 12/03/93
- Date of Change-in-Service: _____

- ABANDONMENT IN PLACE**
- Fill tank until material overflows tank opening;
 - Plug or cap all openings;
 - Disconnect and cap or remove vent line
 - Solid inert material used - specify: _____

- REMOVAL**
- Create vent hole
 - Label tank
 - Dispose of tank in approved manner
- Final tank destination: Scrap -
- RPM Services, Inc.

VIII. Certification (Read and Sign)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete.

Print name and official title of owner or owner's authorized representative J. D. Solomon, P.E., Project Manager	Signature 	Date Signed 1/18/94
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APPENDIX C
CHEMICAL ANALYSIS RESULTS



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CERTIFICATE OF ANALYSIS

REPORT DATE: December 15, 1993
 LAB #: 9312033
 F & R CLIENT: F&R Raleigh
 Attn: J. D. Solomon

PROJECT: DFR- Jefferson
 PROJECT #: V-66-394
 SAMPLE COLLECTOR: Chuck Seabright
 LAB RECEIPT: DATE: 12-7-93 TIME: 1035

<u>PARAMETER</u>	<u>ANALYSIS DATE/TIME</u>	<u>METHOD</u>	<u>ANALYST</u>
TPH-GC Low BP	12-10-93 1241	SW846/5030/8015M	IS

RESULTS:

<u>F&R #:</u>	<u>SAMPLE ID:</u>	<u>DATE/TIME:</u>	<u>TYPE</u>	<u>TPH-GC LOW BP</u>
9312033-01	UST-1, 1000G-N	12-2-93,1710	Soil/G	BDL
9312033-02	UST-1, 1000G-S	12-2-93,1715	Soil/G	BDL
9312033-03	UST-2, 550G-E	12-3-93,0840	Soil/G	BDL
9312033-04	UST-2, 550G-W	12-3-93,0845	Soil/G	BDL
9312033-05	Island	12-3-93,0805	Soil/G	BDL
9312033-06	UST-1,Piping	12-3-93,0820	Soil/G	BDL
9312033-07	UST-2,Piping	12-3-93,0800	Soil/G	BDL

Detection Limit 6 mg/kg

NOTE: The sample ID for UST-2, 550G-E and UST-2, 550 G-W should read UST-2, 750G-E and UST-2, 750G-W, respectively.

Respectfully,


 Audrey Brubeck
 Laboratory Supervisor

HEADQUARTERS: 3015 DUMBARTON ROAD • BOX 27524 • RICHMOND, VA 23261-7524
 TELEPHONE (804) 264-2701 • FAX (804) 264-1202

BRANCHES: ASHEVILLE, NC • BALTIMORE, MD • CHARLOTTE, NC • CHESAPEAKE, VA
 CROZET, VA • FAYETTEVILLE, NC • FREDERICKSBURG, VA •
 GREENVILLE, SC • RALEIGH, NC • ROANOKE, VA • STERLING, VA

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CHAIN OF CUSTODY RECORD

Please Print - CLIENT NAME
ADDRESS

DFR - RALEIGH / DFR - JEFFERSON

PHONE/FAX

919-828-3441

FROEHLING & ROBERTSON, INC.
P.O. BOX 27524
RICHMOND, VIRGINIA 23261
TEL: (804) 264-2701
FAX: (804) 264-1202

LAB PROJECT #	CLIENT PROJECT NAME/NUMBER	PLEASE PRINT	CONTAINER # OF	CONTAINER	REQUESTED TESTS	PARAMETER	DATE	TIME	RECEIVED	DATE	TIME
93120330	DFR - JEFFERSON	CHUCK SEABRIGHT									
01	S-1	12/2/93 5:10	✓	UST-1 1000 GAL GAS (N)	1	SOIL	✓				
02	S-2	12/2/93 5:15	✓	UST-1 - 1000 GAS (S)	1	SOIL	✓				
03	S-3	12/3/93 8:40	✓	UST-2 - 550 GAS (E)	1	SOIL	✓				
04	S-4	12/3/93 8:45	✓	UST-2 - 550 GAS (W)	1	SOIL	✓				
05	S-5	12/3/93 8:05	✓	ISLAND	1	SOIL	✓				
06	S-6	12/3/93 8:20	✓	UST-1 PINE	1	SOIL	✓				
07	S-7	12/3/93 8:00	✓	UST-2 PINK	1	SOIL	✓				

TPH - #5030
LOW - B.P. (EAS)

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME
<i>Chuck Seabright</i>	12-3	1100	Grace Wrose	12/7/93	1035

- PID FOR ALL SAMPLES = 0
- NO OLFATORY OR VISUAL EVIDENCE OF CONTAMINATION IN FIELD

SHIPPED VIA UPS DATE 12/6/93